

Serial No. 10/784,199

Attorney Docket No. 15-046-RCE

REMARKS

Please consider the following comments. Following this response, claims 6 and 14-21 are pending. Applicant respectfully requests reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claim Amendments

By this response Applicant has amended claim 11 to correct some minor errors. In particular, the word "circuit" in line 11 was incorrectly written as "current," and the word "from" in line 17 was incorrectly written as "form." Applicant has corrected both of these errors.

Applicant has also amended claim 6 to properly indicate that the voltage comparator compares a divided voltage proportional to a voltage of the power source with a predetermined reference voltage, not the actual voltage of the power source.

Also, Applicant has amended claim 16 to depend from new claim 20, and has amended claim 14 to recite that the protecting switch is between the booster coil and the electrical circuit, rather than between the voltage booster and the electrical circuit, to avoid any possibility of lack of clarity.

Because these amendments are being made solely to correct minor errors, and not in response to any art rejections, any narrowing amendment to the claims in the present response is not to be construed as a surrender of any subject matter between the original claims and the present claims; rather this is merely an attempt at providing one or more definitions of what the applicant believes to be suitable patent protection. The present claims provide the intended scope of protection that the applicant is seeking for this application. Therefore, no estoppel should be presumed, and the applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents.

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Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 1, 3-5, and 7-9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Japanese Patent No. JP361221674A to Yaejima et al. ("Yaejima") in view of United States Patent No. 5,703,412 to Takemoto et al. ("Takemoto") and United States Published Patent Application No. 2002/0130645 to Tsai et al. ("Tsai").

By this response Applicant has canceled claims 1, 3-5, and 7-9, thus rendering this rejection moot. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1, 3-5, and 7-9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yaejima in view of Lyon and Tsai.

The Examiner has rejected claim 6 and 12-18 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yaejima, in view of Takemoto, United States Patent No. 6,859,020 to Baldwin et al. ("Baldwin"), and Tsai. Although not mentioned in the formal rejection, Applicant assumes that claim 19 is included in this rejection, since the Examiner discusses claim 19 in the body of the rejection.

By this response Applicant has canceled claims 12 and 13, thus rendering this rejection moot as it pertains to these claims.

Claim 6 recites "a voltage comparator connected to the power source for comparing a divided voltage proportional to a voltage of the power source with a predetermined reference voltage and for outputting a control signal when the divided voltage is higher than the reference voltage." Nothing in Yaejima, Takemoto, Baldwin, or Tsai discloses or suggests this feature.

The Examiner relies upon Yaejima for a teaching of this feature. In particular, the Examiner asserts that the resistors R3 and R4, along with the operational amplifier 7 show the

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recited voltage comparator. However, this analysis ignores a limitation in claim 6, namely that the voltage comparator be connected to the power source.

As shown in FIG. 3 of Yaejima, the resistor R3 is connected to one end of the resistor R2, *not* the output of element 3 (which Applicant believes is what the Examiner relies upon for a teaching of the power source). Thus, what the Examiner considers as showing the recited voltage comparator, is not, in fact connected to a power source, as required by claim 6. There are at least two elements (i.e., the transistor 5, and the resistor R2) between what the Examiner asserts shows the recited voltage comparator and what the Examiner asserts shows the recited power source. Thus, a careful examination of Yaejima shows that the resistors R3 and R4, along with the operational amplifier 7 operate to monitor an *output* voltage, not an *input* voltage.

Claim 6 also recites "a protecting switch disposed in the voltage booster for disconnecting the electrical circuit from the power source when the control signal is supplied from the voltage comparator, thereby protecting the electrical circuit from overvoltage." Nothing in Yaejima, Takemoto, Bladwin, or Tsai discloses or suggests this feature.

The Examiner relies upon either Yaejima or Tsai for a teaching of this feature. In particular, the Examiner asserts that the transistor 5 shows the recited protecting switch. However, this analysis ignores a limitation in claim 6, namely that the recited protecting switch operate to disconnect the electrical circuit from the power source when the control signal is supplied from the voltage comparator, thereby protecting the electrical circuit from overvoltage.

As shown in FIG. 3 of Yaejima, the resistor R1 and the transistor 6 are provided in parallel with the transistor 5, providing a parallel current path. Thus, the transistor 5 will not disconnect an electrical circuit from a power source when the operational amplifier 7 provides a proper signal. Even if the transistor 5 is turned off, an alternate current path may remain through the resistor R1 and the transistor 6.

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And while Tsai shows an NMOS transistor switch that operates as an overvoltage protective circuit 209, this switch is not operable based on a control signal that is output when a divide voltage proportional to a power source voltage is higher than a reference voltage, as required by claim 6.

In addition, neither Yaejima nor Tsai shows a switch formed in a voltage booster. In each case where the Examiner cites a switch, it is separate from any element the Examiner relies upon to show a voltage booster. And in the case of Yaejima and Tsai, the switch is in a separate reference from any element the Examiner relies upon to show a voltage booster. Furthermore, in each case, the element that the Examiner relies upon to show the switch operates solely as a switch to isolate power. Given that, there would be no reason in the cited references to place a switch within a voltage booster.

Claim 6 also recites a "voltage booster comprising ... a rectifying diode for allowing current to flow only in one direction from the booster coil to the electrical current" and that "the protecting switch also functions as the rectifying diode in the voltage booster." Nothing in Yaejima, Takemoto, Bladwin, or Tsai discloses or suggests this feature.

The Examiner relies upon Tsai for a teaching of this feature. In particular, the Examiner asserts that the NMOS transistor switch in Tsai that operates as an overvoltage protective circuit 209 shows the recited protecting switch. The Examiner then claims that an intrinsic rectifying anti-parallel body diode is an inherent property of a MOSFET, and concludes that Tsai's NMOS transistor switch therefore shows that a protecting switch also functions as the recited rectifying diode. However, this analysis ignores a limitation in claim 6, namely that the rectifying diode allow current to flow only in one direction from the booster coil to the electrical current.

As one of skill in the art would understand, the body diode effect of a FET is a result of the fabrication process, and creates a one-way, source-to-drain current flow. However, as shown

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in Tsai, the NMOS transistor switch 209 in Tsai has its drain connected to V_{IN} , and its source connected to the voltage switch 202. Thus, the body diode inherent in the NMOS transistor switch 209 operates to prevent current from flowing through the body diode from V_{IN} to the voltage switch 202 when the NMOS transistor switch 209 is turned off, but does not prevent current from flowing through the body diode from the voltage switch 202 to V_{IN} when the NMOS transistor switch 209 is turned off. (See, e.g., Tsai, paragraph [0027], and FIG.1) Thus, if the Examiner combines the NMOS transistor switch 209 with the other cited art, it would not render obvious a rectifying diode for allowing current to flow only in one direction from a booster coil to an electrical circuit, as recited in claim 6.

The embodiment of Applicant's FIG. 4 shows an example of a protecting switch that provides this functionality. In particular, the protecting switch of FIG. 4 includes two FET switches connected so that their parasitic diodes are directed in different directions. (See, e.g., Applicant's specification, page 8, lines 3-23, and FIG. 4.)

Claims 14-19 all ultimately depend from claim 6 and are allowable for at least the reasons given above for claim 6.

Therefore, for at least the reasons given above, Applicant respectfully requests that the Examiner withdraw the rejection of claims 6 and 12-18 (and possibly 19) under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yacjima, in view of Takemoto, Baldwin, and Tsai.

New Claim

By this response, Applicant has added new claims 20 and 21. No new matter has been added in these new claims. Support for claim 20 can be found, for example, in Applicant's specification on page 6, lines 6-18, and in FIGs. 2-5. Support for claim 20 can be found, for

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example, in Applicant's specification on page 8, lines 3-23, and FIG. 4. Applicant respectfully requests that the Examiner enter and consider these new claims.

Conclusion

Applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, applicant has provided specific examples of elements in the claims that are clearly not present in the cited prior art.

Applicant strongly emphasizes that one reviewing the prosecution history should not interpret any of the examples Applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, for the sake of simplicity, Applicant has provided examples of why the claims described above are distinguishable over the cited prior art.

In view of the foregoing, Applicant submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the Examiner is invited to contact the undersigned by telephone.

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Although it is not anticipated that any additional fees are due or payable, the
Commissioner is hereby authorized to charge any fees that may be required to Deposit Account
No. 50-1147.

Respectfully submitted,



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